AMENDMENTS TO THE SPECIFICATION

On page 1, please delete the subtitle indicated in parenthesis next to the heading "BACKGROUND ART" and before the paragraph bridging pages 1 and 2:

BACKGROUND ART

~~(Publicly-known technique concerning wire electric discharge machining)~~

On page 2, please delete the subtitle on line 18. before the second full paragraph:

~~(Publicly-known technique concerning a switching element)~~

On Page 4, please delete the subtitle on lines 10 and 11 before the second full paragraph:

~~(Specific example of a conventional power supply device for electric discharge machining)~~

On page 13, please delete the second full paragraph starting at line 11 and replace it with the following amended one:

Here, when the FET 2 shown in Fig. 1 is used as the switching elements S11a and S11b, the delay time tr from the discharge start time t0 until the electric discharge machining current IWE11 appears in the inter-electrode portion is usually about 410 nanoseconds. In addition, a pulse width of capacitor discharge of the discharge start current IWE10 is about 360 nanoseconds. In ~~60~~50 nanoseconds that is a difference between the delay time tr and the pulse width, although it is likely that discharge is cut off if this state is not changed, since the discharge maintenance current IWE22 flows as described above, the inter-electrode current IWE is never cut off.

On Page 17 line 12, please delete the subtitle before the first full paragraph:

~~(Prior examples for the invention)~~

Please delete the entire content of the "DISCLOSURE OF THE INVENTION" starting at line 20, the paragraph bridging pages 19 and 20, through page 29, line 10, second full paragraph, and replace it with the following:

It is an object of the present invention to solve at least the problems in the conventional technology.

A power supply device for electric discharge machining according to one aspect of the present invention includes a switching circuit that supplies a discharge pulse current to an inter-electrode portion that is a portion between an electrode and a workpiece serving as another electrode arranged to be opposed to the electrode at a predetermined interval; and a pulse-width control unit that generates a control pulse signal of a predetermined pulse width in response to a detection signal for starting a discharge at the inter-electrode portion. The switching circuit includes a switching circuit including a switching element suitable for a high-speed operation and a switching circuit including a switching element suitable for a low-speed operation, and receives the control pulse signal in parallel.

A power supply device for electric discharge machining according to another aspect of the present invention includes a switching circuit that supplies a discharge pulse current to an inter-electrode portion that is a portion between an electrode and a workpiece serving as another electrode arranged to be opposed to the electrode at a predetermined interval; and a pulse-width control unit that generates a control pulse signal of a predetermined pulse width in response to a detection signal for starting a discharge at the inter-electrode portion. The switching circuit includes a switching circuit including a switching element suitable for a high-speed operation; and a switching circuit including a switching element suitable for a low-speed operation, and receives the control pulse signal in parallel. The switching circuit includes a first switching circuit

that receives a detection signal for discharge start in the inter-electrode portion; and a second switching circuit that receives a control pulse signal of a predetermined pulse width generated in response to the discharge start. The first switching circuit includes either of the switching element suitable for the high-speed operation and the switching element suitable for the low-speed operation. The second switching circuit includes the switching element suitable for the low-speed operation.

A power supply device for electric discharge machining according to still another aspect of the present invention includes a first pulse-width control unit and a second pulse-width control unit that generate a control pulse signal of a first pulse width and a control pulse signal of a second pulse width, respectively, in response to starting of a discharge in an inter-electrode portion that is a portion between an electrode and a workpiece serving as another electrode arranged to be opposed to the electrode at a predetermined interval; a first switching circuit that receives the control pulse signal of the first pulse width and supplies a discharge pulse current to the inter-electrode portion, the first switching circuit including a first switching circuit that includes a switching element suitable for a low-speed operation; a second switching circuit that receives the control pulse signal of the second pulse width and supplies a discharge pulse current to the inter-electrode portion, the switching circuit including a second switching circuit that includes a switching element suitable for a high-speed operation; a discharge-state judging unit that judges a discharge state at a time of starting the discharge in the inter-electrode portion from among a normal discharge state, an immediate discharge state, and a short circuit state; and a current-pulse selecting unit that issues an output instruction to the first pulse-width control unit when the discharge-state judging unit judges that the discharge state is the normal discharge state, and issues an output instruction to the second pulse-width control unit when the discharge-state judging unit judges that the discharge state is either of the immediate discharge state and the short circuit state.

A power supply device for electric discharge machining according to still another aspect of the present invention includes a first pulse-width control unit and a second pulse-width control unit that generate a control pulse signal of a first pulse width and a control pulse signal of a second pulse width, respectively, in response to starting of a discharge in an inter-electrode portion that is a portion between an electrode and a workpiece serving as another electrode arranged to be opposed to the electrode at a predetermined interval; a first switching circuit that receives the control pulse signal of the first pulse width and supplies a discharge pulse current to the inter-electrode portion, the first switching circuit including a first switching circuit that includes a switching element suitable for a low-speed operation; a second switching circuit that receives the control pulse signal of the second pulse width and supplies a discharge pulse current to the inter-electrode portion, the switching circuit including a second switching circuit that includes a switching element suitable for a high-speed operation; a discharge-state judging unit that judges a discharge state at a time of starting the discharge in the inter-electrode portion from among a normal discharge state, an immediate discharge state, and a short circuit state; and a current-pulse stop unit that issues an output stop instruction to the first pulse-width control unit when the discharge-state judging unit judges that the discharge state is either of the immediate discharge state and the short circuit state.

On page 32, please delete the subtitle at line 1:

~~First embodiment~~

On page 38, please delete the first full paragraph ad replace it with the following full paragraph:

As shown in (4) and (6) in Fig. 7, pulse widths of the drive pulse signals PD1 and PD2 are in a relation of PD1>PD2. Although, the pulse width of the drive pulse signal PD1 is the same as the pulse width of the control pulse signal PC outputted by the

oscillation control circuit 4, end time thereof can be changed and set from the outside. On the other hand, a fixed value may be used for the pulse width of the drive pulse signal ~~PD1~~PD2 because of a role of the drive pulse signal ~~PD1~~PD2.

On page 39, please delete the second full paragraph starting at line 11, and replace it with the following amended one:

At a point when the time tr2 has elapsed from the discharge start time t0, the switching elements S2a and S2b comes ino the ON operation state for the fixed time t2 (on) according to the drive pulse signal PD2 (4), and the discharge maintenance current ~~IW2~~IWE2 flows (5). This discharge maintenance current ~~IW2~~IWE2 starts flowing to replace the discharge start current IWE0 at a point when the discharge start current IWE0 has passed the peak value and drops to a certain value (9).

Please delete the paragraph bridging pages 39 and 40, and replace it with the following one:

The control pulse signal PC outputted by the oscillation control circuit 4 has a pulse width set in advance (6), and the drive pulse signal PD1 is generated with the same pulse width (7). At a point when the time tr1 has elapsed from the discharge start time t0, the switching elements S1a and S1b come into the ON operation state for the fixed period t1 (on) according to the drive pulse signal PD1 (7), and the electric discharge machining current IWE1 flows (8). This electric discharge machining current IW1 starts flowing replacing the discharge maintenance current ~~IW2~~IWE2 at about a point when the discharge maintenance current ~~IW2~~IWE2 turns to drop (9).

On page 45, please delete the subtitle at line 15, before the second full paragraph: ~~Second embodiment~~

Please delete the paragraph bridging pages 48 and 49, and replace it with the following one:

Pulse widths of the drive pulse signals PD1 and PD2 are in a relation of PD1>PD2 as in the first embodiment ((4) and (6) in Fig. 11). Although the drive pulse signal PD1 has the same pulse width as the pulse width of the control pulse signal PC outputted by the oscillation control circuit 4, end time thereof can be changed and set from the outside. On the other hand, a fixed value may be used for the pulse width of the drive pulse signal ~~PD1~~PD2 because of a role of the drive pulse signal ~~PD1~~PD2.

On page 54, pleased delete the second full paragraph starting at line 9 and replace it with the following one:

Fig. 13 is a block diagram of a structure of a power supply control circuit included in a power supply device for electric discharge machining that is a third embodiment of the present invention. Note that, in ~~Fig. 10~~Fig. 13, components identical with or equivalent to the components described in the second embodiment (Fig. 10) are denoted by the identical reference numerals and signs. Here, parts related to the third embodiment will be mainly explained.

Please delete the paragraph bridging pages 55 and 56 and replace it with the following one:

Similarly, times, in which the switching element ~~S2a~~S2b is driven to ~~be turned~~turn ON, generated by the drive circuits ~~6a~~6b and ~~7a~~7b are also different from each other. An ON time for the switching element S2b can be changed by the switching device 9. Moreover, since the switching element 9 is adapted to operate according to an instruction from the external numerical control device 8, ON times for the switching elements S2a and S2b can be variably controlled by the numerical control device 8.

On page 56, please delete the subtitle at line 12, before the third full paragraph: ~~Fourth embodiment~~

On page 63, the subtitle at line 10, before the second full paragraph:

~~Fifth embodiment~~

On page 66, please delete the subtitle at line 16 and before the second full paragraph:

~~Sixth embodiment~~

Please delete the paragraph bridging pages 66 and 67 and replace it with the following amended one:

In short, the power supply control circuit according to the ~~fifth~~sixth embodiment is a circuit that controls to drive the switching elements S1a, S1b, S2a, and S2b in the power supply device for electric discharge machining described in the first embodiment (Fig. 1). The sixth embodiment describes an example (third example) of a structure of a circulating current drive system that ON/OFF controls the switching elements S1a and S1b with a low loss in different ON operation times to form various current circulating loops.

On page 69, please delete the subtitle a line 3, before the first full paragraph:

~~Seventh embodiment~~

On page 74, pleased delete the subtitle at line 15:

~~Eighth embodiment~~